

## CLAIMS

### We Claim:

1. A method of storing and communicating sets of topographic information to and from information processing and viewing devices by means of an accessible electronic network, each of the sets being specific to an individual golf course, comprising the steps of:

(a) inputting a first set of information to a first information processing and viewing device, said first set of information being data representative of a golf course topography, said first set of information including data elements relating to attributes of the golf course, said data elements including at least one location for each of said attributes in the set and said first information processing and viewing device executing course-mapper software;

(b) transmitting said first set of information from the first information processing and viewing device to the network; and

(c) accessing said first set of information through said network with a second information processing and viewing device with autonomy from any positional equipment at the golf course, said second information processing and viewing device executing course-player software.

2. The method of claim 1 wherein said inputting step further comprises the steps of:

receiving location data via an antenna connected to a position module;

connecting said position module to said first information processing and viewing device, said first information processing and viewing device being operable to execute said course-mapper software when said antenna is in a reception only mode.

3. The method of claim 1 wherein said inputting step further comprises the steps of:

selecting a label corresponding to one of said attributes from a set of labels corresponding to said attributes of the golf course;

receiving location data from a position module;

determining a relative accuracy of said location data;

assigning said relative accuracy to said location data;

labeling said location data with said selected label to form one of said data elements;

indicating said relative accuracy by displaying said location data with a visual signifier;

repeating said selecting and assigning steps for a plurality of attributes of the golf course to produce said first set of information; and

saving said first set of information as a map file for said golf course topography.

4. The method of claim 1 including the additional steps of:

(d) altering the set of information accessed from the network with said second device and with autonomy from any positional equipment at the golf course to produce a second set of information representative of the golf course topography;

(e) transmitting said second set of information to the network; and

(f) providing access to said altered set of information with autonomy from any positional equipment at the golf course.

5. The method of claim 4 wherein the altering of the first set of information increases the accuracy of the data correspondence to the golf course attributes to produce a second set of information which is more correctly representative of the golf course than the first set.

6. The method of claim 1 including the additional steps of:

(d) inputting a second set of information to said second information processing and viewing device, said second set of information relating to at least one ball location as a result of playing the golf course by at least one individual;

(e) displaying said first and second sets of information on said second information processing and viewing device, wherein said ball location is displayed as a moving representation with respect to said golf course topography; and

(f) replaying said displaying step for said first and second sets of information in at least one alterable manner including an adjustable replay speed for said moving representation.

7. The method of claim 1 further comprising the step of entering a user application into said second information processing and viewing device, wherein said user application includes player software suited for an application selected from the group consisting of navigation, hiking, hunting, biking, farming, and golfing, wherein said  
5 player software displays a moving representation for said application in at least one alterable manner, including an adjustable replay speed for said application's moving representation.

8. The method of claim 1 including the additional steps of:

10 (d) storing said first set of information in a publicly accessible database, said database further storing additional sets of information representative of a plurality of golf courses; and

(e) providing access over said network to the stored sets of information in the database with autonomy from any positional equipment at said plurality of golf courses.

15 9. The method of claim 8 wherein the stored sets of information accessed from the database are alterable with autonomy from any positional equipment at said plurality of golf courses.

10 10. The method of claim 8 wherein said database is accessible by connection to a web site, said web site providing the information sets in a form accessible with a web browser.

11. The method of claim 1 wherein said golf course topography includes processing and displaying difference-of-elevation information between any two points on the golf course as selected on the processing and viewing device.

25 12. The method of claim 11 wherein said difference-of-elevation is interpolated from Global Positioning System data and a georeferenced elevation dataset.

13. A system of storing and communicating sets of topographic information to and from information processing and viewing devices by means of an accessible network, each of the sets being specific to an individual golf course, comprising:

30 (a) a first information processing and viewing device executing course-mapper software and receiving input of a first set of information, said first set of

information being data representative of a golf course topography, said first set of information including data elements relating to attributes of the golf course, said data elements including at least one location for each attribute in the set;

(b) a central information processing site and database receiving said set of  
5 information from said first information processing and viewing device and providing access to said set over the network; and

(c) a second information processing and viewing device receiving transmission of said first set of information from the first information processing device over the network and with autonomy from any positional equipment at the golf course.

10 14. The system of claim 13 wherein said first information processing and viewing device is operable for executing said course-mapper software with an antenna in a reception only mode and with autonomy from any positional equipment at the golf course.

15 15. The system of claim 13 wherein at least one of said first and second information processing and viewing devices comprises:

a position module with an antenna receiving location data; and

a display module being in operable communication with said position module for receiving said location data therefrom, said display module comprising a portable hand-held personal computer and a viewer, wherein said portable computer executes said  
20 course-mapper software, determines a relative accuracy of said location data, assigns said relative accuracy to said location data, and causes said viewer to display said location data with said visual signifier to indicate said relative accuracy.

16. The system of claim 13 including:

(d) altering with said second device and with autonomy from any positional  
25 equipment at the golf course the set of information accessed from the network to produce a second set of information representative of the golf course topography; and

(e) transmitting said second set of information over the publicly accessible network to the central information processing site and database, said central site then selectively providing access to said altered set of information over the network with  
30 autonomy from any positional equipment at the golf course.

17. The system of claim 16 wherein the altering of the first set of information increases the accuracy of the data correspondence to the golf course attributes to produce a second set of information which is more correctly representative of the golf course than the first set.

5 18. The system of claim 13 wherein a second set of information is received and processed by said second information processing and viewing device, said second set of information relating to at least one ball location as a result of playing the golf course by at least one individual, and wherein said second information processing and viewing device displays said ball location as a moving representation with respect to a display of  
10 said golf course topography, and wherein said second information processing and viewing device replays said ball location in at least one alterable manner including an adjustable replay speed for said moving representation.

19. The system of claim 13 wherein a user application is entered into said second information processing and viewing device, said user application including player  
15 software suited for an application selected from the group consisting of navigation, hiking, hunting, biking, farming, and golfing, wherein said player software displays a moving representation for said application in at least one alterable manner, including an adjustable replay speed for said application's moving representation.

20. The system of claim 13 wherein said central site and database further  
20 contain additional sets of information representative of a plurality of golf courses; and provides access over said network to the additional sets of golf courses information in the database with autonomy from any positional equipment at said plurality of golf courses.

21. The system of claim 20 wherein the stored sets of information accessed from the database are alterable with autonomy from any positional equipment at said  
25 plurality of golf courses.

22. The system of claim 20 wherein said database is accessible by connection to a web site, said web site providing the information sets in a form accessible with a web browser.

23. The system of claim 13 wherein said golf course topography includes processing and displaying difference-of-elevation information between any two points on the golf course as selected on the processing and viewing device.

24. The system of claim 23 wherein said difference-of-elevation is  
5 interpolated from Global Positioning System data and a georeferenced elevation dataset.

25. A portable information processing and viewing device for storing and communicating topographic information comprising:

a portable information processing and viewing device, said device having an information processor for the storage, retrieval and processing of a map data file  
10 including position information, said device also having a viewer for the display of said position information, said device further having data inputs, said data inputs including at least one of a user interface and direct electrical connections;

said position information including location data and a corresponding data label relating to at least one topographic characteristic of at least one selected geographic  
15 region, said map data file also including relative accuracy data corresponding with said location data, said characteristic being represented on said viewer by visual signifiers, said visual signifiers including at least a representation of an attribute and an indication of a position of said topographic characteristic, wherein said indication of said position by said visual signifiers further includes an indication by said visual signifiers of said  
20 relative accuracy data corresponding with said location data; and

said direct electrical connections adapted for connection with at least one cooperative device for enabling said information processing and viewing device to perform an operation of at least one of generating, accessing, storing and communicating of said map data file, wherein said cooperative device further enables said information  
25 processing and viewing device to autonomously process and display said position information.

26. The information processing and viewing device according to claim 25 wherein said cooperative device is a position module having an antenna for enabling said information processing and viewing device to modify said location data, and wherein said

information processing and viewing device is operable to at least store, retrieve and process said modified location data with an antenna in a reception only mode.

27. The information processing and viewing device according to claim 25 wherein said location data is generated with a position module by attaching said position  
5 module as said cooperative device, said data label corresponding to said location data is generated with said user interface by selecting a label from a set of labels corresponding to a set of attributes for said geographic region, and said relative accuracy data is assigned to said location data by said processor, and wherein said location data is comprised of latitude and longitude for said position of said topographic characteristic, said data label  
10 is comprised of said selected label for said topographic characteristic, and said relative accuracy data is comprised of a quality value determined for said location data.

28. The information processing and viewing device according to claim 27, wherein said geographic region includes a golf course and said position information relates to a plurality of attributes of said golf course, and wherein said information  
15 processing and viewing device retrieves said map data file autonomously from any positional equipment at said golf course.

29. The information processing and viewing device according to claim 25 wherein said cooperative device is a position module for enabling said information processing and viewing device to modify said location data, wherein said position module  
20 receives said location data, said processor assigns said relative accuracy data to said location data, said viewer indicates with said visual signifiers a quality value of said location data; and said location data is altered with said user interface.

30. The information processing and viewing device according to claim 29, wherein said geographic region includes a golf course and said position information relates to a plurality of attributes of said golf course, and wherein said information  
25 processing and viewing device retrieves said map data file autonomously from any positional equipment at said golf course.

31. The information processing and viewing device according to claim 25 wherein said cooperative device is a detachable position module which enables the

information processing and viewing device to store said map data file relating to topographic characteristics of said selected geographic region; and

wherein said detachable position module and said map data file are transferable to a second information processing and viewing device for enabling said second information processing and viewing device to access said map data file, and wherein said second information processing and viewing device receives, processes and displays additional location data relating to said geographic region, said additional location data for said geographic region being displayed as a moving representation with respect to a display of said map data file for said geographic region, wherein said second information processing and viewing device replays said moving representation in at least one alterable manner, including an adjustable replay speed for said moving representation.

32. The information processing and viewing device according to claim 25 wherein said cooperative device is a data link.

33. The information processing and viewing device according to claim 32 wherein said data link is a connection to a personal computer for the communication of data between said information processing and viewing device and said computer.

34. The information processing and viewing device according to claim 32 wherein said data link is a connection to a network for the communication of data between said information processing and viewing device and said network.

35. The information processing and viewing device according to claim 34 wherein said network is a private access network.

36. The information processing and viewing device according to claim 34 wherein said network is a publicly accessible network such as the Internet.

37. The information processing and viewing device according to claim 34 wherein said network provides said information processing and viewing device access to an additional map data file.

38. The information processing and viewing device according to claim 34 wherein said network provides said information processing and viewing device storage of said map data file.



39. The information processing and viewing device according to claim 34 wherein said network provides said information processing and viewing device access to an archived map data file, said archived map data file being modifiable by said information processing and viewing device following access; and

5       said network further providing said information processing and viewing device storage of said modified archived map data file.

40. The information processing and viewing device according to claim 25 wherein said position information relates to a plurality of attributes of a golf course and is modifiable by said information processing and viewing device, wherein said information  
10       processing and viewing device retrieves said map data file autonomously from any positional equipment at said golf course and generates a round data file autonomously from any positional equipment at said golf course, said round data file including ball location data.

41. The information processing and viewing device according to claim 40  
15       wherein said position information is modified with said user interface to increase said relative accuracy data of said modified position information.

42. The information processing and viewing device according to claim 40 wherein said modified position information and said round data file are storable in the information processing and viewing device.

20       43. The information processing and viewing device according to claim 40 wherein said modified position information and round data file are communicable with a data link cooperative device over a network.

44. A portable information processing and viewing device for storing and communicating topographic information comprising:

25       a portable information processing and viewing device, said device having an information processor for the storage, retrieval and processing of data which encodes information, said device also having a viewer for the display of information encoded in the data, said device further having data inputs, said data inputs including at least one of a user interface and direct electrical connections;

said information, encoded in the data, includes information relating to at least one topographic characteristic of at least one selected geographic region, said topographic characteristic being represented on said viewer by visual signifiers, said visual signifiers including at least a representation of an attribute and an indication of a position of said topographic characteristic;

said direct electrical connections adapted for connection with at least one cooperative device for enabling said information processing and viewing device to perform an operation of at least one of generating, accessing, storing and communicating of said data, wherein said cooperative device further enables said information processing and viewing device to autonomously process and display said information relating to topographic characteristics;

wherein said geographic region includes a golf course, said golf course represented on said viewer by at least a partial display of a selected hole of said golf course; and

wherein additional information relating to playing said golf course is displayed as a moving representation with respect to said partial display of said golf course, said moving representation being displayable in alterable manners, said alterable manners including the rate of progression of said representation.

45. The information processing and viewing device according to claim 44 wherein a location on said golf course is communicated via said direct electrical connections by attaching a position module as said cooperative device, and wherein said information processing and viewing device displays the topographic characteristics of said location.

46. The information processing and viewing device according to claim 45 wherein the display of the topographic characteristics of said location includes an indication of a position of said location and a corresponding representation of an attribute at said location, wherein said information relating to said topographic characteristic is comprised of location data and a data label corresponding with said location data, and wherein said location data is comprised of latitude and longitude for said position of said topographic characteristic and said data label is comprised of a label for said attribute of

said topographic characteristic, said label being selected from a set of labels corresponding with a set of attributes for said geographic region.

47. The information processing and viewing device according to claim 46, wherein said information relating to said topographic characteristic is further comprised  
5 of relative accuracy data corresponding with said location data, said relative accuracy data being comprised of a quality value determined for said location data, wherein the display of the topographic characteristics of said location includes an indication of said quality value of said location data.

48. The information processing and viewing device according to claim 47  
10 wherein the display of said information of playing said golf course further includes information relating to the playing of a golf shot from said location.

49. The information processing and viewing device according to claim 46 wherein said information relating to said topographic characteristic includes elevation information, and wherein a difference-of-elevation is processed and displayed on said  
15 viewer in response to a selection of two locations.

50. The information processing and viewing device according to claim 44 wherein said cooperative device is a position module with an antenna for receiving a location on said golf course, and wherein said information processing and viewing device is operable to at least store, retrieve and process said information relating to said  
20 topographic characteristic with said antenna in a reception only mode.

51. The information processing and viewing device according to claim 44 wherein said cooperative device is a data link to a second information processing device, said second information processing and viewing device including player software suited for an application selected from the group consisting of navigation, hiking, hunting,  
25 biking, farming, and golfing, wherein said player software displays a moving representation for said application in at least one alterable manner including the rate of progression of said application's moving representation.

52. The information processing and viewing device according to claim 44 wherein said cooperative device is a data link to a network.

53. The information processing and viewing device according to claim 44 wherein said information processing and viewing device includes player software suited for an application selected from the group consisting of navigation, hiking, hunting, biking, farming, and golfing, wherein said player software displays a moving  
5 representation for said application in at least one alterable manner including the rate of progression of said application's moving representation.

54. A portable information processing and viewing device for storing and communicating topographic information comprising:

a portable information processing and viewing device, said device having an  
10 information processor for the storage, retrieval and processing of a data set, said device also having a viewer for the display of said data set, said device further having a user interface and direct electrical connections;

said data set comprising at least one corresponding set of location information, a data label and relative accuracy data, said location information and said data label relating  
15 to at least one topographic characteristic of at least one selected geographic region and said relative accuracy data relating to a quality value for said corresponding location information, said geographic regions including at least one golf course, said characteristic being represented on said viewer by visual signifiers, said visual signifiers including at least a representation of an attribute and an indication of a position of said topographic  
20 characteristic, wherein said indication of said position by said visual signifiers includes an indication of said relative accuracy of said location information, and wherein said location information is comprised of latitude and longitude for said position of said topographic characteristic and said data label is comprised of a label for said attribute of said topographic characteristic, said label being selected from a set of labels  
25 corresponding with a set of attributes for said geographic region;

said direct electrical connections adapted for connection with at least one cooperative device for enabling said information processing and viewing device to perform an operation of at least one of generating, accessing, storing and communicating of said data set, said cooperative device further enabling said information processing and

viewing device to autonomously process and display said information relating to topographic characteristics;

wherein said cooperative device is a detachable position module generating said location information, said user interface receives said selected label, and said processor  
5 assigns said relative accuracy data to said location data, and said information processor calculates said quality value and assigns said relative accuracy data to said corresponding location information, wherein said detachable position module has an antenna for receiving position related information and wherein said information processing and viewing device is operable to at least store, retrieve and process said data set with said  
10 antenna in a reception only mode; and

wherein said detachable position module and said data set are transferable to a second information processing and viewing device, and wherein said second information processing and viewing device receives, processes and displays additional location information relating to playing said golf course, said additional location information for  
15 playing said golf course being displayed as a moving representation with respect to a display of said data set for said golf course, wherein said second information processing and viewing device replays said moving representation in at least one alterable manner, including an adjustable replay speed for said moving representation.

55. A portable information processing and viewing device for storing and  
20 communicating topographic information comprising:

a portable information processing and viewing device, said device having an information processor for the storage, retrieval and processing of data which encodes information, said device also having a viewer for the display of information encoded in the data, said device further having data inputs, said data inputs including at least one of a  
25 user interface and direct electrical connections;

said information, encoded in the data, relating to at least one topographic characteristic of at least one selected geographic region, said geographic regions including at least one golf course, said characteristic being represented on said viewer by visual signifiers, said visual signifiers including at least a representation of an attribute  
30 and an indication of a position of said topographic characteristic;

said direct electrical connections adapted for connection with at least one cooperative device for enabling said information processing and viewing device to perform an operation of at least one of accessing, storing and communicating of said data, said cooperative device further enabling said information processing and viewing device to autonomously process and display said information relating to topographic characteristics;

wherein at least one of said cooperative devices is a position module having an antenna for receiving position related information and wherein said information processing and viewing device is fully operable with said antenna in a reception only mode.

56. The information processing and viewing device according to claim 55 wherein said position module receives Global Positioning Satellite information.

57. The information processing and viewing device according to claim 55 wherein said information relating to said topographic characteristic is comprised of location data and a data label corresponding with said location data, said location data and said data label being stored in a map data file, and wherein said location data is comprised of latitude and longitude for said position of said topographic characteristic and said data label is comprised of a label for said attribute of said topographic characteristic, said label being selected from a set of labels corresponding with a set of attributes for said geographic region.

58. The information processing and viewing device according to claim 57 wherein said information relating to said topographic characteristic is further comprised of relative accuracy data corresponding with said location data, said relative accuracy data being comprised of a quality value determined for said location data, wherein the display of the topographic characteristics of said location includes an indication of said quality value of said location data.

59. The information processing and viewing device according to claim 57 wherein a second cooperative device is a data link for providing communication of said map file to a second information processing device autonomously from any positional equipment at said golf course.

60. The information processing and viewing device according to claim 57 wherein a second cooperative device is a data link for providing communication of said map file over a network autonomously from any positional equipment at said golf course.

61. The information processing and viewing device according to claim 57  
5 wherein said position module also communicates ball location data over said direct electrical connections, said information processor generates a round data file with said ball location data, and said viewer displays said round data file for said ball location as a moving representation with respect to said map data file for said golf course, and wherein said information processing and viewing device replays said moving representation in at  
10 least one alterable manner including an adjustable replay speed for said moving representation.

62. The information processing and viewing device according to claim 61 wherein said information processing and viewing device includes player software suited for an application selected from the group consisting of navigation, hiking, hunting,  
15 biking, farming, and golfing, wherein said player software displays a moving representation for said application in at least one alterable manner, including an adjustable replay speed for said application's moving representation.

63. The information processing and viewing device according to claim 57 wherein said location data further comprises elevation for said position of said  
20 topographic characteristic, and wherein a difference-of-elevation is processed and displayed on said viewer in response to a selection of two locations.

64. The information processing and viewing device according to claim 57 wherein said location data further comprises elevation for said position of said topographic characteristic, and wherein a difference-of-elevation is processed and  
25 displayed on said viewer in response to a selection of two locations.

65. The information processing and viewing device according to claim 55 wherein said one cooperative device is a position module that receives Global Positioning Satellite information relating to locations on said golf course and differential correction information for correcting said Global Positioning Satellite information;

wherein said information relating to locations includes information relating to a relative height of said location and a means to display the same to the user;

a second cooperative device is a means for accessing a stored set of information relating to locations on said golf course, wherein said second cooperating device utilizes  
5 said Global Positioning Satellite and said differential correction information to increase a degree of accuracy of said stored set of information; and

wherein said increase in the degree of accuracy of said stored set of information includes an increase in the degree of accuracy of a relative height of said location.

66. The information processing and viewing device according to claim 65  
10 wherein the relative height of said location displayed to the user changes dynamically with respect to a target location selected as the information processing and viewing device receive input from the user.

67. The information processing and viewing device according to claim 66 wherein the user input is transmitted by a stylus dragged across a displayed map.

15 68. The information processing and viewing device according to claim 55 wherein said antenna is detachable for flexible placement.

69. The information processing and viewing device according to claim 68 wherein said antenna is flexibly placeable for improved reception.

20 70. The information processing and viewing device according to claim 55 wherein said antenna is flexibly placeable for greater accuracy of position determination by closer placement of said antenna to a location for which position is to be determined.

71. A method of storing and displaying sets of topographic information, comprising the steps of:

25 (a) inputting a first set of information to a portable information processing and viewing device, said first set of information being data representative of a topography, said first set of information including data elements relating to attributes of said topography, said data elements including at least one location for each of said attributes;

(b) inputting a second set of information to said portable information processing and viewing device, said second set of information relating to location data for  
30 traversing said topography;



(c) displaying said first and second sets of information on said portable information processing and viewing device, wherein said location data for traversing said topography is displayed as a moving representation with respect to said topography; and

(d) replaying said displaying step for said first and second sets of information in at least one alterable manner including an adjustable replay speed for said moving representation.

72. The method of claim 71, further comprising the step of receiving said location data for traversing said topography via an antenna operable in a reception only mode.

73. The method of claim 71, further comprising the steps of assigning at least one location-quality identifier to said data elements in said first set of information and assigning a visual signifier according to said location-quality identifier, wherein said visual signifier identifies a relative accuracy of said data elements in said displaying step.

74. A method of storing and displaying sets of topographic information, each of the sets being specific to an individual golf course, comprising the steps of:

(a) inputting a first set of information to a portable information processing and viewing device, said first set of information being data representative of a golf course topography, said first set of information including data elements relating to attributes of the golf course, said data elements including at least one location for each of said golf course attributes;

(b) inputting a second set of information to said portable information processing and viewing device, said second set of information relating to at least one ball location as a result of playing the golf course by at least one individual;

(c) displaying said first and second sets of information on said portable information processing and viewing device, wherein said ball location is displayed as a moving representation with respect to said golf course topography; and

(d) replaying said displaying step for said first and second sets of information in at least one alterable manner including an adjustable replay speed for said moving representation.

75. The method of claim 74, further comprising the step of receiving said second set of information relating to at least one ball location via an antenna operable in a reception only mode.

76. The method of claim 74, further comprising the steps of assigning at least one location-quality identifier to said data elements in said first set of information and assigning a visual signifier according to said location-quality identifier, wherein said visual signifier identifies a relative accuracy of said data elements in said displaying step.

77. The method of claim 74 wherein said golf course topography includes processing and displaying difference-of-elevation information between any two points on the golf course as selected on said portable processing and viewing device.

78. The method of claim 77 wherein said difference-of-elevation is interpolated from Global Positioning System data and a georeferenced elevation dataset.

79. A system of storing and communicating sets of topographic information to and from information processing and viewing devices by means of an accessible network, comprising:

(a) a first information processing and viewing device receiving input of a first set of information, said first set of information being data representative of a topography, said first set of information including data elements relating to attributes of said topography, said data elements including at least one location for each attribute in the set;

(b) a second set of information relating to location data for traversing said topography;

(c) a central information processing site and database receiving said first and second sets of information from said first information processing and viewing device and providing access to said sets over the network; and

(d) a second information processing and viewing device receiving transmission of said first and second sets of information, displaying said location data for traversing said topography as a moving representation with respect to said topography, and replaying said moving representation in at least one alterable manner including an adjustable replay speed for said moving representation.

80. The system of claim 79 wherein said topography is a course and said location data for traversing said course relates to a round on said course.

81. The system of claim 79 wherein said topography is a golf course and said location data for traversing said golf course relates to the playing of a golf ball on said golf course.

82. A system of storing and communicating sets of topographic information to and from information processing and viewing devices by means of an accessible network, each of the sets being specific to an individual golf course, comprising:

(a) a first information processing and viewing device receiving input of a first set of information, said first set of information being data representative of a golf course topography, said first set of information including data elements relating to attributes of the golf course, said data elements including at least one location for each attribute in the set;

(b) a second set of information relating to at least one ball location as a result of playing the golf course by at least one individual;

(c) a central information processing site and database receiving said first and second sets of information from said first information processing and viewing device and providing access to said sets over the network; and

(d) a second information processing and viewing device receiving transmission of said first and second sets of information, displaying the playing of the golf course as a moving representation with respect to said golf course topography, and replaying said moving representation in at least one alterable manner including an adjustable replay speed for said moving representation.

83. The system of claim 82 wherein a user application is entered into said first information processing and viewing device, said user application including player software suited for an application selected from the group consisting of navigation, hiking, hunting, biking, farming, and golfing, wherein said player software displays a moving representation for said application in at least one alterable manner, including an adjustable replay speed for said application's moving representation.

84. The system of claim 82 wherein a user application is entered into said second information processing and viewing device, said user application including player software suited for an application selected from the group consisting of navigation, hiking, hunting, biking, farming, and golfing, wherein said player software displays a moving representation for said application in at least one alterable manner, including an adjustable replay speed for said application's moving representation.

85. The system of claim 82 wherein said first information processing and viewing device comprises:

a position module with an antenna receiving location data; and

a display module being in operable communication with said position module for receiving said first set of information, said display module comprising a portable handheld personal computer and a viewer, wherein said portable computer determines a relative accuracy of each said location in said data elements, assigns said relative accuracy to said location data, and causes said viewer to display said location with said visual signifier to indicate said relative accuracy.

86. The system of claim 82 wherein said first information processing and viewing device comprises a position module with an antenna, said information processing and viewing device generating at least one of said first and second sets of information with said antenna in a reception only mode.

87. A handheld apparatus for measuring and displaying distances between a golfer and an object on a golf course comprising:

a handheld computing device;

a GPS device connected to said handheld computing device;

said GPS device producing measured location information corresponding to the location of said GPS device;

means, within said handheld apparatus, for modifying said measured location information to obtain corrected location information;

means, within said handheld apparatus, for determining a distance between the GPS device and said object by using said corrected location information and stored information concerning the location of said object; and

wherein said handheld computing device displays said distance.

88. The apparatus of claim 87 wherein the measured location information includes latitude and longitude values corresponding to said GPS device.

5 89. The apparatus of claim 88 wherein the measured location information includes altitude values corresponding to said GPS device.

90. The apparatus of claim 87 wherein said computing device and said GPS device are in a single handheld housing.

91. The apparatus of claim 87 wherein said object is a green.

92. The apparatus of claim 87 wherein said object is a sandtrap.

10 93. The apparatus of claim 87 wherein said object is a water hazard.

94. A handheld apparatus for measuring and displaying distances between a golfer and an object on a golf course comprising:

a handheld computing device;

a GPS device connected to said handheld computing device;

15 said GPS device producing latitude, longitude and altitude values corresponding to the location of said GPS device;

means, within said handheld apparatus, for modifying said latitude, longitude and altitude values to obtain corrected latitude, longitude and altitude values; and

20 means, within said handheld apparatus, for determining the distance between said GPS device and said object by using said corrected latitude, longitude and altitude values and stored information concerning the location of said object.

95. The apparatus of claim 94 wherein said computing device and said GPS device are in a single handheld housing.

96. The apparatus of claim 94 wherein said object is a green.

25 97. The apparatus of claim 94 wherein said object is a sandtrap.

98. The apparatus of claim 94 wherein said object is a water hazard

99. A method of obtaining and processing location values for a desired point on a golf course using a handheld apparatus comprising the steps of:

30 obtaining reference point GPS information using a handheld GPS device reflecting a measured location of a reference point;

comparing said GPS information with true location information for said reference point using a handheld computing device and generating one or more correction values in said handheld computing device based on said comparing step; and

obtaining desired point GPS information using said handheld GPS device  
5 reflecting a measured location of said desired point; and

applying said one or more correction values to said desired point GPS information using said handheld computing device to generate corrected location information for said desired point.

100. The method of claim 99 wherein said corrected location information is  
10 used to calculate the distance between said desired point and a stored target point.

101. The method of claim 100 wherein said reference point GPS information includes latitude, longitude and altitude values corresponding to said reference point.

102. The method of claim 101 wherein said desired point GPS information includes latitude, longitude and altitude values corresponding to said desired point.

15 103. A method for measuring the distance between points on a golf course comprising the steps of:

storing location values for multiple targets on a golf course based on GPS measurements taken on a first date;

generating corrected location values based on a difference in environmental  
20 conditions on said first date and a second date;

on said second date, obtaining location information concerning a desired point using a GPS device; and

computing the distance between said desired point and one of said multiple targets using said corrected location values and said location information concerning said desired  
25 point using a handheld apparatus.

104. The method of claim 103 wherein said multiple targets includes one or more greens.

105. The method of claim 104 wherein said multiple targets includes one or more sandtraps.

106. The method of claim 105 wherein said multiple targets includes one or more water hazards.

107. A handheld apparatus for measuring and displaying distances between a golfer and an object on a golf course comprising:

5 a first handheld computing device;

a GPS device connected to said first handheld computing device;

said GPS device producing measured location values corresponding to the location of said GPS device;

10 means, within said handheld apparatus, for generating error correction values to be applied to said measured location values; and

means for transmitting said error correction values to a second handheld computing device.

108. The apparatus of claim 107 wherein said transmitting means includes an infrared transmitter.

15 109. The apparatus of claim 107 wherein said transmitting means includes an RF transmitter.

110. The apparatus of claim 107 wherein said transmitting means includes a direct cable connection between said first and second handheld computing devices.

111. A handheld personal golfing assistant comprising:

20 a handheld computing device having a display;

a GPS device connected to said handheld computing device;

means, within said handheld personal golfing assistant, for computing multiple approximate distances traveled by a golf ball after being hit by a golfer using one or more golf clubs;

25 means, within said handheld personal golfing assistant, for selectively storing said approximate differences;

means, within said handheld personal golfing assistant, for selectively storing information representing the identity of each golf club used by said golfer;

30 means, within said handheld personal golfing assistant, for determining the average distances traveled by a golf ball when hit by said golfer on a club by club basis;

means for determining a recommended club to be used by said golfer based at least in part on said average distances; and

means for displaying information on said display representing said recommended club.

5        112. The personal golfing assistant of claim 111 wherein said means for determining a recommended club includes means for receiving distance information generated by said handheld computing device.

10        113. The personal golfing assistant of claim 111 wherein said means for determining a recommended club includes means for receiving distance information from a source outside of said handheld computing device.

15        114. A handheld personal golfing assistant comprising:  
a handheld computing device having a display;  
a GPS device connected to said handheld computing device;  
means, within said handheld personal golfing assistant, for calculating the average distances traveled by a golf ball hit by a golfer on a club by club basis; and  
means for displaying on said display a suggested club to be used by said golfer based on a distance input to said handheld computing device.

20        115. The personal golfing assistant of claim 114 wherein said distance input is based on information produced by said GPS device.

25        116. The personal golfing assistant of claim 114 wherein said distance input is based on information entered into handheld computing device from a source external of said personal golfing assistant.

30        117. A method of identifying a handheld device using a unique identification number comprising the steps of:

storing said unique identification number in a memory of said handheld device;  
retrieving said unique identification number from said memory of said handheld device, when logging into a web site; and

permitting user access, via said handheld device, to an area of said web site in response to said unique identification number retrieved from said memory of said handheld device.



118. The method of claim 117, wherein the area accessed comprises golf course data available for downloading based on purchases or subscription associated with said unique identification number.

119. The method of claim 117, wherein the area accessed comprises golf course  
5 information recorded by the user.

120. The method of claim 117, wherein the area accessed comprises folder areas containing collections of specific course information to be downloaded to the handheld device;

121. The method of claim 117, wherein the area accessed comprises user  
10 preferred settings for the handheld device.

122. The method of claim 118, wherein golf course data to be downloaded is encrypted using a key for said unique identification number based on a static key

123. The method of claim 118, wherein golf course data to be downloaded is encrypted using a key for said unique identification number based on a rotating key.

124. The method of claim 117, wherein one or more screens are displayed on  
15 said handheld device based on said unique identification number.

125. The method of claim 124, wherein the one or more displayed screens comprise one or more advertising screens for a group of unique identification numbers.

126. The method of claim 124, wherein the one or more displayed screens  
20 comprise a sponsor screen for a group of unique identification number.

127. The method of claim 124, wherein the one or more displayed screens comprise a personal startup screen for said unique identification number.

128. The method of claim 117, wherein at least one security protocol is invoked based on said unique identification number.

129. The method of claim 128, where the security protocol invoke disables or  
25 reduces the functionality of the handheld device.

130. The method of claim 117, further comprising the step of automatically updating a current application software on said handheld device based on said handheld device reporting, upon connection to said web site, said current application software

version running on said handheld device, and said web site downloading an appropriate application software update from a file storage area on said web site.

131. The method of claim 130, wherein the application software update corresponds to said unique identification number of said handheld device.

5 132. The method of claim 130, wherein the application software update corresponds to a group of unique identification numbers.

133. The method of claim 117, whereby information or data may be streamed to said handheld device or a group of handheld devices on unique identification number lookups associated to real-time data field updates in a web site server database.

10 134. The method of claim 117 whereby data is uploaded or streamed in real-time from said handheld device to said web site and associated with said unique identification number of said handheld device.

135. The handheld apparatus of claim 87, further comprising a means for determining accuracy potential percentage of said distance.

15 136. The handheld apparatus of claim 87, further comprising a means for displaying wind direction to indicate relative direction of wind as viewed from a golfer's approach to a green.

137. The handheld apparatus of claim 87, further comprising a means for displaying pace of play of a golfer relative to a normal pace of play.

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